

Applicant : Andrew Eric Carlson
Serial No. : 09/940,076
Filed : August 27, 2001
Page : 2 of 6

Attorney's Docket No.: 09712-119001 / Z-265

Amendments to the Claims:

This listing of claims replaces all prior versions and listings of claims in the application:

Listing of Claims:

1-20. Canceled.

21. (Previously Presented) An apparatus comprising:

a multi-axis interferometer comprising a polarizing beam splitter block having

(i) multiple output ports on a common face of the block, each output port positioned to transmit from within the block a corresponding intermediate beam derived from a common input beam, and

(ii) a polarizing beam splitting interface internal to the block and positioned relative to the common face of the block to separate each intermediate beam into a measurement component and a reference component having different polarizations.

22. (Previously Presented) The apparatus of claim 21, wherein at least some of the multiple output ports are partially reflective.

23. (Previously Presented) The apparatus of claim 22, wherein the reflectivities of the output ports are selected to cause the intermediate beams to have substantially equal intensities.

24. (Previously Presented) The apparatus of claim 21, wherein the common input beam or a portion thereof is incident on each output port from within the block, and wherein each output port causes the propagation direction of the transmitted intermediate beam to differ from that of the incident beam.

Applicant : Andrew Eric Carlson
Serial No. : 09/940,076
Filed : August 27, 2001
Page : 3 of 6

Attorney's Docket No.: 09712-119001 / Z-265

25. (Previously Presented) The apparatus of claim 24, wherein each output port diffracts the incident beam to transmit the intermediate beam.

26. (Previously Presented) The apparatus of claim 24, wherein each output port refracts the incident beam to transmit the intermediate beam.

27. (Previously Presented) The apparatus of claim 21, wherein the polarizing beam splitting interface causes the measurement and reference components to have orthogonal polarizations.

28. (Previously Presented) The apparatus of claim 21, wherein the multi-axis interferometer further comprises a corner reflector positioned to redirect each intermediate beam towards the polarizing beam splitting interface.

29. (Previously Presented) The apparatus of claim 22, wherein the block comprises a reflective coating on a face opposite the common face, the reflective coating positioned to redirect any beam portion internally reflected by one of the output ports to be incident on another of the output ports.

30. (Previously Presented) The apparatus of claim 21, wherein the multi-axis interferometer further comprises a reference mirror positioned to reflect each of the reference components back towards the polarizing beam splitter interface, a reference wave plate positioned between the reference mirror and the polarizing beam splitter interface, and a measurement wave plate positioned between the polarizing beam splitter interface and a measurement object.

Applicant : Andrew Eric Carlson
Serial No. : 09/940,076
Filed : August 27, 2001
Page : 4 of 6

Attorney's Docket No.: 09712-119001 / Z-265

31. (Previously Presented) The apparatus of claim 30, wherein the polarizing beam splitter interface is configured to recombine each measurement and reference component with one another after the measurement components make a pass to the measurement object, and wherein the multi-axis interferometer further comprises a plurality of retro-reflectors each positioned to redirect a corresponding pair of the recombined components back to the polarizing beam splitter interface.

32. (Previously Presented) A multi-axis interferometer comprising:
a polarizing beam splitter block having

(i) multiple output ports on a common face of the block, each output port positioned to transmit from within the block a corresponding intermediate beam derived from a common input beam, and

(ii) a polarizing beam splitting interface internal to the block and positioned relative to the common face of the block to separate each intermediate beam into a measurement component and a reference component having different polarizations.